

Remarks

Claims 1-3, 5, 7, 9-26, 28, and 30-34 are pending in this application. The examiner has rejected claims 1-3, 5, 7, 10-26, 28 and 31-34 as being invalid under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,526,478 to Kirby. The examiner has rejected claims 9 and 30 on the ground that these claims are obvious under 35 U.S.C. § 103(a) in view of the combination of Kirby and U.S. Patent No. 5,623,672 to Popat.

A. Kirby Does Not Anticipate

Kirby does not anticipate any of rejected claims 1-3, 5, 7, 10-26, 28, or 31-34. First, the subject matter of Kirby is not related to the subject matter of the claims of the pending applications. Kirby is directed to a method for creating logical units (LUNs) in a RAID system by allocating proportional amounts of disk storage space to each LUN. (Abstract). In contrast, claims 1-3, 5, 7, 10-26, 28, and 31-34 are directed to a storage area network and methods for operating a network to correlate the function of the storage controllers and servers of the network. Elements of claims 1-3, 5, 7, 10-26, 28, and 31-34 are simply not present in Kirby.

Importantly, independent claims 1, 14, 21, and 22 require that the execution throttle levels of the servers of the network be correlated with the command queue depth of the storage controllers of the network. This function is not suggested or disclosed by Kirby. With reference to claims 1, 14, 21, and 22, each specifies a relationship between the execution throttle level of at least one server of the network and the command queue depth of at least one storage controller of the network:

Claim 1:	verifying that a rule governing the command throughput of the servers and storage controllers of the network is satisfied, the rule defining a relation between the execution throttle levels of the servers of the
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network and the command queue depth of the storage controllers of the network; and

adjusting the execution throttle level of at least one server of the network in response to a determination that the rule was not satisfied.

Claim 14: wherein the execution throttle level of each server is set such that the execution throttle of each server is correlated to the command queue depth of each storage controller.

Claim 21: determining, for each storage controller, whether the summed execution throttle level exceeds the command queue depth of the storage controller; and

if the summed execution throttle level exceeds the command queue depth, adjusting the execution throttle level of one or more of the servers of the storage area network.

Claim 22: verifying that a rule governing the command throughput of the servers and storage controllers accessed by the servers is satisfied, the rule defining, for each storage controller, a relation between the independent execution throttle levels of the servers associated with the storage controller and the command queue depth of the storage controller; and

adjusting the independent execution throttle level of at least one server in response to a determination that the rule was not satisfied.

From a plain reading of the independent claims, it is claimed that the execution throttle levels of the servers of the network are compared with and adjusted on the basis of the command queue depths of the storage controllers. This feature of the claims is not disclosed in Kirby.

First, the examiner points to language in Kirby at column 9, lines 20 - column 10, line 6 as including disclosure related to the identification of servers of the network and identification of logical ownership of each LUN on the network. The passage at column 9, lines

20 - column 10, line 6 states that Table 1 of Kirby shows “the mapping of segments from a virtual volume to physical disks...” (Kirby, 9:13-14). This does not disclose logical *ownership* of an LUN, rather, it simply involves the *mapping* of strips or segments of an LUN to physical disks. (Kirby, 9:23-24) Thus, Kirby does not disclose required elements of the claims.

Second, and most importantly, Kirby does not in any manner disclose or suggest the correlation of an execution throttle level of a server to the command queue depth of a storage controller of the network. The examiner points to language in Kirby at column 7, line 10 - column 8, line 53 and column 8, lines 20-67 as including disclosure related to the correlation of the execution throttle levels of the servers of the network and the command queue depths of the storage controllers of the network. First, there is no disclosure in Kirby of a method for adjusting the execution throttle level of a server. Second, there is no disclosure in Kirby of a method for adjusting the command queue depth of a storage controller. The terms “command queue depth” and “storage controller” are not even present in Kirby. Third, there is no disclosure in Kirby of a technique for correlating these two operational characteristics.

Although Kirby does involve LUNs, I/O rates of disk accesses or requests, and balancing of loads (see Kirby, 7:19-25), Kirby does not in any manner disclose or suggest the involvement of execution throttle levels of servers in the network or the command queue depths of storage controllers of the network. Kirby’s use of LUNs and load balancing with regards to I/O rates involves only the use of proportionally mapping disk storage space. (Kirby, 9:29-30) Thus, Kirby does not in any way disclose the correlation of an execution throttle level of a server to the command queue depth of a storage controller of the network.

Because Kirby does not disclose each and every element of claims 1, 14, 21, and 22, a rejection of these claims on anticipation grounds is improper. “A claim is anticipated

only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir 1987). “The identical invention must be shown in complete detail as is contained in the . . . claim.” *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1336 (Fed. Cir 1989). With respect to claims 1, 14, 21, and 22 of the present application, each and every element of claims 1, 14, 21, and 22 is not found in Kirby. Specifically, Kirby does not disclose or suggest a network in which the execution throttle settings of the servers of the network are compared against the command queue depth settings of the storage controllers of the network. Because the invention of claims 1, 14, 21, and 22 is not disclosed in Kirby, the rejection of these claims should be withdrawn, and the claims should be passed to issuance. Because the invention of claims 2, 3, 5, 7, 10-13, 15-20, 23-26, 28, and 31-34 depend from claims 1, 14, 21, and 22, the rejection of these claims should be withdrawn, and the claims should be passed to issuance.

B. Claims 9 and 30 and the Combination of Kirby and Popat

Claims 9 and 30 are not obvious over Kirby in view of Popat. In order to establish a prima facie case of obviousness, the references cited by the Examiner must disclose all claimed limitations. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974). Furthermore, according to § 2143 of the Manual of Patent Examining Procedure, to establish a prima facie case of obviousness, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings.

First, the references cited by the Examiner do not disclose all claimed limitations. As was shown above, Kirby simply does not disclose elements of the claims from which claims 9 and 30 depend. Thus, Kirby cannot disclose all required elements of claims 9 and 30. Popat also

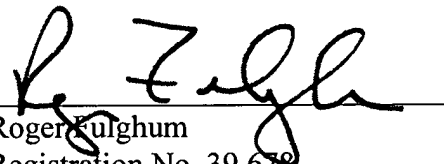
does not disclose anything relating to a storage area network and methods for operating a network to correlate the function of the storage controllers and servers of the network. Thus, the references cited by the Examiner do not disclose all claimed limitations.

The examiner states that “it would have been obvious for one of ordinary skill in the art at the time of the invention to modify Kirby by implementing round robin format as taught by Popat because doing so would allow the system to establish request priority to each group and within each group and therefore give more weight to request received from a group (see Popat col.6 lines 19-33).” (Office Action at 9). It is not clear which groups the examiner is referring to in this statement (whether servers, storage controllers, or some other group), nor is it clear how knowledge of round robin schemes (as presented by Popat) would render the combination of Popat and Kirby obvious to one of ordinary skill in the art at the time of the invention. Additionally, there is no cited suggestion or motivation to combine in the references themselves (Kirby or Popat), nor is it stated why the statement that the combination of Popat and Kirby “would allow the system to establish priority to each group...” is generally available knowledge to one of ordinary skill in the art. Thus, there is no motivation to combine these references. Because all claim limitations are not disclosed by the references and there is not motivation to combine these references, claims 9 and 30 are not rendered obvious by Popat in view of Kirby.

Conclusion

Applicants respectfully submit that pending claims 1-3, 5, 7, 9-26, 28, 30-34 of the present invention are allowable. Applicants respectfully request that these claims be passed to issuance.

Respectfully submitted,


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